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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## SULFUR IN FEBRUARY 1997

During the month, production of combined Frasch and recovered elemental sulfur was 800,000 metric tons, according to the U.S. Geological Survey. February production was 8% lower than that of January 1997 and 3% lower than that of February 1996. Shipments of these combined products were 8% lower than those of January 1997.

Import and export data for February 1997 were not available at the time of publication. Import/export data and apparent consumption for February 1997 will be published in the March 1997 Sulfur Mineral Industry Surveys.

Imports of recovered sulfur for January 1997 were 134,000 tons. Exports of sulfur, for the same period, were 10,000 tons. Imports of sulfuric acid for January 1997 were 145,000 tons; exports were 11,000 tons.

Beginning in August 1996, sulfur "Imports for Consumption" reported by the Bureau of the Census included data for material from countries that historically had not been sources for U.S. sulfur imports. In some cases the imports were reported from countries that had little or no sulfur recovery capacity but in all cases the countries of origin were producers of crude oil. The same situation occurred in the import data for petrochemicals. Another indication that the data were questionable was that the import values listed for the sulfur from unusual countries was much higher than would be expected for that volume of sulfur.

Careful examination of the data and input from Census and the National Petroleum Refiners Association resulted in clarification of the issue and a solution to the problem. A 1995 ruling issued by the Department of Commerce's Foreign Trade Zone Board granted U.S. petroleum refineries special status as

Foreign Trade Zones (FTZ's). Since 1995, almost 40 refineries have received FTZ status.

FTZ's are manufacturing plants within the United States into which raw materials may be imported without paying any applicable tariffs. When the final products leave the FTZ's and enter the U.S. market, they are then taxed at the rates established for those products, not those of the imported raw materials used to produce the final products and byproducts. In this way, the refineries are able to pay duties on the end products that may have lower duties, and in the case of sulfur, no duty. Reported import values corresponded to the average value of a like quantity of crude oil, significantly higher than the import values of most elemental sulfur.

The sulfur data from FTZ's were first reported as imports in August 1996, and have steadily increased since that time. The sulfur that enters FTZ's contained in crude oil is listed as "Imports for Consumption" along with all actual elemental sulfur, but the sulfur content of the crude oil is excluded from the "General Imports" category. An additional complication to the situation is that the same material is also reported as U.S. recovered sulfur production in the USGS monthly sulfur survey. Reporting this sulfur as both imports and production results in double counting and skews apparent consumption calculations. USGS has traditionally included Census "Imports for Consumption" data. From now on, to avoid double counting and to more accurately reflect U.S. sulfur consumption, trade statistics published in the sulfur monthly Mineral Industry Surveys will use "General Imports" statistics received from the Bureau of the Census.

TABLE 1  
SALIENT SULFUR STATISTICS 1/

(Thousand metric tons)

Period	Production				Shipments, all sources
	Frasch 2/	Petroleum 3/	Natural gas 4/	Total 4/	
1996	W	5,370	4,970	10,300	10,400
Jan.-Feb. 1996	W	839	868	1,710	1,700
1996:					
February	W	406	419	825	815
March	W	430	424	854	835
April	W	449	423	872	898
May	W	467	422	889	863
June	W	416	397	813	763
July	W	433	427	860	832
August	W	468	432	900	917
September	W	440	401	841	872
October	W	466	412	878	885
November	W	481	354	835	858
December	W	484	413	897	949
1997:					
January	W	444 r/	425 r/	869 r/	872 r/
February	W	393 p/	407 p/	800 p/	798 p/
Total	W	837	832	1,670	1,670

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Natural gas."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Estimates based on information available from the Texas Comptroller of Public Account and company quarterly reports.

3/ Includes a small quantity from coking operations.

4/ Includes data from Frasch producers.

TABLE 2  
U.S. IMPORTS OF SULFUR 1/

(Thousand metric tons and thousand dollars)

Period	Canada		Mexico		Total, all countries 2/	
	Quantity	Value 3/	Quantity	Value 3/	Quantity	Value 3/
1996:						
January	96 r/	4,780 r/	18	781	135 r/	7,060 r/
February	96 r/	4,140 r/	37	1,910	150 r/	7,080 r/
March	93 r/	2,480 r/	37	1,720	130 r/	4,680 r/
April	82 r/	2,220 r/	37	1,990	119 r/	4,660 r/
May	119 r/	2,400 r/	37	1,280	186 r/	5,520 r/
June	114 r/	2,100 r/	36	1,760	180 r/	4,860 r/
July	111 r/	4,610 r/	36	1,680	148 r/	6,700 r/
August	80 r/	1,590 r/	57	2,510	157 r/	4,910 r/
September	59 r/	1,380 r/	58	2,470	135 r/	4,410 r/
October	92 r/	2,170 r/	19 e/	826	111 r/ e/	3,110 r/
November	81 r/	1,740 r/	40	1,750	155 r/ e/	4,670 r/
December	66 r/	1,350 r/	57	2,510	123 r/	3,950 r/
Total	1,090 r/	31,000 r/	467	21,200	1,730 r/	61,600 r/
1997:						
January	74	1,440	60	2,730	134	4,360

e/ Estimated. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include other countries not listed.

3/ Declared customs valuation.

Source: Bureau of the Census; as adjusted by U.S. Geological Survey.

TABLE 3  
U.S. IMPORTS OF SULFURIC ACID 1/

(Thousand metric tons and thousand dollars)

Period	Canada			Europe			Total 2/		
	Quantity	Sulfur content	Value 3/	Quantity	Sulfur content	Value 3/	Quantity	Sulfur content	Value 3/
1996:									
January	112	37	3,420	9	3	113	144	47	4,120
February	110	36	2,700	11	4	232	188	62	3,550
March	144	47	3,900	35	12	466	199	65	4,510
April	126	41	3,620	40	13	421	202	66	4,350
May	147	48	3,990	20	7	223	192	63	4,510
June	113	37	2,670	21	7	160	140	46	3,460
July	106	35	2,770	21	7	86	132	43	3,210
August	127	41	3,260	11	3	176	138	45	3,620
September	156	51	3,760	19	6	70	195	64	4,160
October	144	47	3,690	--	--	--	161	53	3,890
November	166	54	3,900	10	3	79	223	73	4,330
December	146	48	3,360	13	4	496	167	55	4,860
Total	1,600	522	41,000	210	69	2,520	2,080	682	48,500
1997:									
January	108	35	3,080	13	4	207	145	47	4,650

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include other countries not listed.

3/ Declared customs valuation.

Source: Bureau of the Census.

TABLE 4  
U.S. EXPORTS OF SULFUR AND SULFURIC ACID 1/

(Thousand metric tons and thousand dollars)

Period	Sulfur		Sulfuric Acid		
	Quantity	Value 2/	Quantity	Sulfur content	Value 2/
1996:					
January	102	7,600	13	4	1,370
February	82	7,080	6	2	805
March	66	1,590	10	3	900
April	120	6,720	7	2	938
May	15	2,330	9	3	1,080
June	124	4,990	8	3	785
July	62	3,160	9	3	978
August	139	7,280	12	4	1,090
September	36	1,910	12	4	1,080
October	92	3,760	12	4	1,440
November	59	3,510	10	3	869
December	16	1,810	9	3	1,020
Total	913	51,700	117	38	12,300
1997:					
January	10	746	11	4	1,170

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Declared f.a.s. (free alongside ship) valuation.

Source: Bureau of the Census.

TABLE 5  
U.S. CONSUMPTION OF SULFUR 1/

(Thousand metric tons)

Period	Domestic sources 2/	Imports	Consumption
1996:			
January	780	135 r/	915 r/
February	733	150 r/	883 r/
March	769	130 r/	899 r/
April	778	119 r/	897 r/
May	848	186 r/	1,030
June	639	180 r/	819 r/
July	770	148 r/	918 r/
August	778	157 r/	935 r/
September	836	135 r/	971 r/
October	793	111 r/ e/	904 r/
November	799	155 r/ e/	954 r/
December	933	123 r/	1,060 r/
Total	9,460	1,730 r/	11,200 r/
1997:			
January	862	134	996

e/ Estimated. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Calculated as shipments minus exports.

TABLE 6  
RECOVERED SULFUR PRODUCED AND SHIPPED IN THE UNITED STATES,  
BY PAD (PETROLEUM ADMINISTRATION FOR DEFENSE) DISTRICT 1/

(Thousand metric tons)

District and source	February 1997 p/		January 1997		Total 1997 2/		Total 1996	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
PAD 1:								
Petroleum and coke	7	7	9	8	16	16	217	225
Natural gas	17	16	15	16	31	32	51	51
Total	24	23	24	25	48	48	267	276
PAD 2:								
Petroleum and coke	77	79	88	91	165	170	927	925
Natural gas	3	3	1	2	5	5	50	49
Total	81	83	89	92	170	175	977	975
PAD 3: 3/								
Petroleum and coke	218	217	269	285	487	502	3,140	3,110
Natural gas 4/	306	312	319 r/	304 r/	625	616	3,860	3,920
Total 5/	524	529	588 r/	589 r/	1,110	1,120	7,000	7,030
PAD 4 and 5: 6/								
Petroleum and coke	91	85	77 r/	82 r/	168	167	1,090	1,100
Natural gas	81	79	90	85	171	164	1,010	992
California	71	65	57 r/	61 r/	127	126	828	834
Total	172	164	168 r/	166 r/	340	330	2,100	2,090
Grand total	800	798	869 r/	872 r/	1,670	1,670	10,300	10,400

p/ Preliminary. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions to prior months.

3/ Includes Puerto Rico and the U.S. Virgin Islands.

4/ Frasch production is included in the natural gas production to avoid disclosing company proprietary data.

5/ Includes data from Frasch producers.

6/ Quantities produced and shipped in California included in petroleum and natural gas. California total shown for information purposes only.

TABLE 7  
COMPARATIVE SULFUR AND SULFURIC ACID STATISTICS 1/

(Million metric tons per year [annualized basis] and dollars per metric ton for period shown)

	1997			1996
	February	January	Year to date	Total
Production	10.40 p/	10.20 r/	10.30	10.30
Shipments	10.40 p/	10.30 r/	10.30	10.40
Exports of sulfur	NA	0.12	0.12	0.91
Imports of sulfur:				
Canada	NA	0.87	0.87	1.09 r/
Mexico	NA	0.71	0.71	0.47
Total	NA	1.58	1.58	1.73 r/
Exports of H <sub>2</sub> SO <sub>4</sub>	NA	0.13	0.13	0.12
Imports of H <sub>2</sub> SO <sub>4</sub> :				
Canada	NA	1.27	1.27	1.60
Europe	NA	0.15	0.15	0.21
Total 2/	NA	1.71	1.71	2.08
Consumption: 3/				
Domestic sources	NA	10.20	10.20	9.46
Imports	NA	1.58	1.58	1.73 r/
Total	NA	11.70	11.70	11.20 r/
Sulfur export values 4/	NA	\$75	\$75	\$57
Sulfur import values: 4/				
Canada	NA	\$19	\$19	\$28 r/
Mexico	NA	\$46	\$46	\$45
Average	NA	\$33	\$33	\$36 r/
H <sub>2</sub> SO <sub>4</sub> export values 4/	NA	\$107	\$107	\$106
H <sub>2</sub> SO <sub>4</sub> import values: 4/				
Canada	NA	\$29	\$29	\$26
Europe	NA	\$16	\$16	\$12
Average	NA	\$32	\$32	\$23

p/ Preliminary. r/ Revised. NA Not available.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other countries not listed.

3/ Because trade data was not available, February consumption was not determined.

4/ Average value per ton for most recent data available.